

REMARKS

Claims 6, 9-11, 13 and 22-75 are pending in the above-captioned patent application following this amendment. Claims 6, 9-11, 13 and 22-74 have been rejected. The applicants have amended claims 6, 22, 37, 50, 59 and 67 to clarify a feature that the applicants believe was inherent in the previously pending claims and have added claim 75 for the purpose of expediting the patent application process in a manner consistent with the goals of the Patent Office pursuant to 65 Fed. Reg. 54603 (September 8, 2000), even though the Applicants believe that the previously pending claims were allowable. Further, a Request for Continued Examination has been filed concurrently herewith.

Support for the amendments to the claims and for new claim 75 can be found throughout the originally filed application, including the originally filed claims, the drawings and the specification. More specifically, support for the amendments to claims 6, 22, 37, 50, 59 and 67 and for new claim 75 can be found at least in Figures 2A, 3A-3C and 4A-4C, and in the specification at page 3, lines 23-32, at page 4, lines 15-21, at page 5, lines 25-28, at page 7, lines 20-27, at page 8, line 23 through page 11, line 3.

No new matter is believed to have been added by this amendment. Consideration of the pending application is respectfully requested.

Interview Summary

On April 20, 2004 and April 29, 2004, the undersigned attorney for the Applicants conducted interviews with the Examiner, Mark Blouin. During at least one of the interviews, the Examiner discussed a new prior art reference that had been cited but not relied upon in this matter, Shimizu et al. (US 6,614,627). However, upon further consideration by the Examiner, the Examiner determined that Shimizu et al. could have been relied upon by the Patent Office under 35 U.S.C. § 102(e) and/or 35 U.S.C. § 103 to reject at least some of the previously pending claims. Moreover, the Examiner indicated that it would be premature for the Applicants to address Shimizu et al. in the instant Response to Final Office Action. Because a rejection based on Shimizu et al. has not yet been formally made, including the specific claims being rejected and the reasons therefore, the Applicants do not address this reference herein.

Rejections Under 35 U.S.C. § 102

Claims 6, 9-11, 13 and 22-74 are rejected under 35 U.S.C. § 102(e) as being anticipated by Khan et al. (USPN 6,188,548). As provided above, claims 6, 22, 37, 50, 59 and 67 have been amended. The Applicants respectfully submit that Khan et al. does not teach or suggest the features of amended claims 6, 22, 37, 50, 59 and 67, as explained below.

The Patent Office asserts that "...Khan et al. shows (Figs 1-5) head stack assembly for a disc drive including ... a transducer assembly including a load beam (10), a flexure (12) secured to the load beam, a data transducer (40) secured to the flexure (12), a base plate securing the transducer assembly to the actuator arm (Fig. 1), and a fine positioner (piezoelectric elements (32, 34)) secured directly to the base plate, the fine positioner moving a portion of the base plate relative to the actuator arm, wherein the base plate further comprises a positioner cavity (Fig. 5, (23)) that receives the fine positioner, the proximal and distal ends are secured under compression, a flex section (224, 226) positioned adjacent to the positioner cavity, the flex sections allowing the base plate to flex, a pair of spaced apart positioner cavities (Fig. 5, (23)) that receive the fine positioner, a pair of flex sections that allow the base plate to flex" The applicants respectfully submit that this reading of Khan et al. is inaccurate.

Khan et al. is directed toward a disk drive suspension that includes a load beam 10 that is supported by a mount plate 14 having a boss 16. (Col. 5, lines 11-14). The load beam 10 includes a base portion 18, a spring portion 20 and a beam portion 22 that carries a slider 40. (Col. 5, lines 14-16; Figs. 1-3 and 5). The Applicants submit that the mount plate 14, and more particularly the mount plate boss 16 fixes the base portion of the load beam to the actuator arm. Importantly, the mount plate boss 16 is not part of the load beam 10. Further, piezoelectric crystals 32, 34 are bonded to the base portion 18 and the beam portion 22 of the load beam 10. (Col. 5, lines 17-20; Figs. 1-5). Moreover, the spring portion 20 of the load beam 10 includes arcuate sections 36, 38 that are connected to the base portion 18 of the load beam 10 and the beam portion 22 of the load beam 10. (Col. 5, lines 31-42; Figs. 1-5).

Khan et al. does not teach or suggest a separately formed base plate that secures the load beam to the actuator arm, with the base plate including one or more flex sections. Further, Khan et al. does not teach or suggest securing a fine positioner (e.g. a piezoelectric element) to a separately formed base plate. Because the piezoelectric crystals 32, 34 are secured to the load beam instead of the base plate, the piezoelectric crystals 32, 34 are subject to more severe bending than if the fine positioner were secured to the base plate. Further, more changes to the design of the head stack assembly are required because the piezoelectric crystals 32, 34 are added directly to the load beam.

Additionally, the location of the piezoelectric crystals 32, 34 increases the likelihood of adverse resonance characteristics of the head stack assembly. Moreover, the location of the piezoelectric crystals 32, 34 can increase head gram load loss. Further, because the piezoelectric crystals 32, 34 are not positioned in a positioner cavity in the base plate, the piezoelectric crystals 32, 34 are placed in sheer mode instead of a compression mode. In the sheer mode, the piezoelectric crystals 32, 34 are less resilient to shock loads and vibration. This increases the incidence of piezoelectric crystals 32, 34 stress cracking and reduces the reliability of the piezoelectric crystals 32, 34.

In addition, because of the placement of the piezoelectric crystals 32, 34 on the load beam rather than the base plate, the life of the fine positioner is decreased. The thickness of the base plate is typically three to five times thicker than the load beam. As a result of this design, the load beam is more flexible when compared to the base plate and the piezoelectric crystals 32, 34 are therefore somewhat less protected from shock and vibration.

In contrast to Khan et al., amended claim 6 requires a "head stack assembly ... comprising: an actuator arm; a coarse positioner that moves the actuator arm relative to the storage disk; a transducer assembly including a load beam, a flexure secured to the load beam, and a data transducer secured to the flexure; a separately formed base plate securing the transducer assembly to the actuator arm, the base plate including (i) one or more edges, (ii) a pair of flex sections that cantilever away from at least one of the edges, the flex sections allowing the base plate to flex, and (iii) a pair of spaced apart positioner cavities that are positioned between the flex sections; and a fine positioner secured to the base plate, the fine positioner being positioned in the

positioner cavities, the fine positioner moving a portion of the base plate relative to the actuator arm." As provided above, these features are not taught or suggested by Khan et al. Therefore, claim 6 is believed to be patentable. Because claims 9-11 and 13 depend directly or indirectly from claim 6, they are likewise believed to be patentable.

Amended claim 22 of the present application is directed to a disk drive that requires "an actuator arm; a transducer assembly including a load beam and a data transducer coupled to the load beam; a separately formed base plate that secures the transducer assembly to the actuator arm, the base plate including a flex section that allows the base plate to flex; and a fine positioner that is secured to the base plate so that the fine positioner does not contact the flex section, the fine positioner selectively flexing at least a portion of the base plate." These features are not taught or suggested by Khan et al. Therefore, claim 22 is believed to be patentable. Because claims 23-36 depend directly or indirectly from claim 22, they are also believed to be patentable.

Amended claim 37 requires "an actuator arm; a transducer assembly including a load beam and a data transducer coupled to the load beam; a separately formed base plate that secures the transducer assembly to the actuator arm; and a first piezoelectric motor having a proximal end and a distal end, that ends being secured to the base plate so that the first piezoelectric motor is under compression, the first piezoelectric motor moving a portion of the base plate relative to the actuator arm." These features are not taught or suggested by Khan et al. Therefore, claim 37 is believed to be patentable. Because claims 38-49 depend directly or indirectly from claim 37, they are likewise believed to be patentable.

Amended claim 50 is directed toward a disk drive that requires "an actuator arm; a transducer assembly including a load beam and a data transducer coupled to the load beam; a separately formed base plate that secures the transducer assembly to the actuator arm, the base plate including a plate mount that secures the base plate to the actuator arm; and a pair of piezoelectric motors that are each secured to the base plate between the plate mount and the data transducer, the piezoelectric motors being substantially parallel to each other, the piezoelectric motors moving a portion of the base plate relative to the actuator arm." These features are not taught or suggested by

Khan et al. Therefore, claim 50 is believed to be patentable. Because claims 51-58 depend directly or indirectly from claim 50, they are likewise believed to be patentable.

Amended claim 59 requires "an actuator arm; a transducer assembly including a load beam and a data transducer coupled to the load beam; a separately formed base plate that secures the transducer assembly to the actuator arm, the base plate including a positioner cavity that extends through the base plate; and a fine positioner that is secured to the base plate so that the fine positioner is positioned over at least a portion of the positioner cavity, the fine positioner selectively flexing at least a portion of the base plate." These features are not taught or suggested by Khan et al. Therefore, claim 59 is considered to be patentable. Because claims 60-66 depend directly or indirectly from claim 59, they are likewise believed to be patentable.

Amended claim 67 of the present invention is directed toward a method that requires "securing a transducer assembly to an actuator arm with a separately formed base plate having a flex section that flexes; securing a fine positioner to the base plate so that the fine positioner is not in contact with the flex section; and flexing the flex section with the fine positioner to cause at least a portion of the base plate to move relative to the actuator arm." These steps are not taught or suggested by Khan et al. Therefore, claim 67 is considered to be patentable. Because claims 68-74 depend directly or indirectly from claim 67, they are likewise believed to be patentable.

Accordingly, the Applicants respectfully submit that the rejection by the Patent Office under 35 U.S.C. § 102(e) should be withdrawn, and that claims 6, 9-11, 13 and 22-74 should be allowed. Consequently, the application is believed to be in condition for allowance.

New Claim

Claim 75 has been added by this amendment. Claim 75 is of a slightly different scope than the previously pending claims. However, in view of the cited references, claim 75 is believed to be allowable.

In addition to the description of Khan et al. provided above, the applicants submit that Kahn does not teach or suggest positioning one or more piezoelectric crystals on a base plate having a thickness that is at least three times the thickness of the load beam.

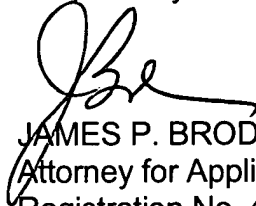
In contrast to Khan et al., claim 75 is directed toward a disk drive that requires "an actuator arm; a data transducer; a load beam that is coupled to and supports the data transducer, the load beam having a thickness; a base plate that secures the transducer assembly to the actuator arm, the base plate having a thickness that is at least approximately three times the thickness of the load beam, the base plate including a flex section that allows the base plate to flex; and a fine positioner that is secured to the base plate so that the fine positioner does not contact the flex section, the fine positioner selectively flexing at least a portion of the base plate." These features are not taught or suggested by Khan et al. Therefore, claim 75 is believed to be allowable.

Conclusion

In conclusion, Applicant respectfully asserts that claims 6, 9-11, 13 and 22-75 are allowable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-672-0454 for any reason that would advance the instant application to issue.

Dated this 9th day of June, 2004.

Respectfully submitted,


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